



Major Procurement Plans for CMS in FY06 with Initial Time Line

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Follow-on talk to 'USCMS Facility Plans at FNAL' of June 28, 2005



Components



Worker Nodes: 320 nodes at 3.8 kSI/node

Data Disk: 600 TB, 10 TB/server = 45 Atabeasts, 90 servers

IBRIX Disk: 6 LSI disk arrays, 6 segment servers

Physics Disk: New - 3 more Atabeast, 3 segment servers

Mass Storage: 1500 9940B tapes, no drives

Mass Storage: New robot +drives in early 07.

Networking: Another 6509 switch in GCC for worker nodes

Development/Test/Misc - 20 servers. Estimate 1/2 to 3/4 to be in production service.



Networking



Networking: Another 6509 switch in GCC for worker nodes

- Should be ordered early - November, so it is ready to accept worker nodes at GCC
- Interested in talking more about other possibilities and getting network's opinions on
 - Cisco still right choice?
 - Smaller switches per rack
 - These will be discussed in our weekly meetings



Workers



Worker Nodes: 320 nodes at 3.8 kSI/node

- We expect to again use the Limited Liability Option and buy 1 rack, then in quantities of 3 racks until we fulfill order.
- We need $320 \times 3.8 = 1200$ kSI. This is what fixes the number of nodes, but we do not realistically expect to buy more than 320 nodes this year.
- Expect to get order to purchasing by April 15, and expect 1st rack on June 1, 3 more racks on July 15, and 4 more racks on September 1.



Data disk



Data Disk: 600 TB, 10 TB/server = 45 Atabeasts, 90 servers

- Could be as low as 33 Atabeasts and 66 servers

We expect the next model for evaluation disk in a few weeks.

Data disk is the most 'ground-breaking' development work next year. No one has operated 600 TB dCache systems, and we expect to encounter unknown scaling issues. Much work has been done anticipating troubles, but we won't know until we try it.

We need a lot of debugging time, so we want to order this relatively early in the year -- roughly Feb 15, with expected delivery on April 1.

We are expecting all of this to be in FCC unless told differently.

Note: we now get 200 MB/sec out of 1 nexsan using 2 servers. We are testing aggregate GE lines to increase this rate.



IBRIX



IBRIX Disk: 6 LSI disk arrays, 6 segment servers

- These are expensive STK/LSI fibre channel SAN arrays and 'expensive' top-of-the-line dell servers.
- Expect to order these very late in they year after dCache data disk is understood. Expect to have in purchasing on Aug 1 with delivery on September 15.

Physics Disk: New - 3 more Atabeast, 3 segment servers

- The physics conveners love this disk since they 'control' it.
- Not part of June 28 talk or plan.
- Trade off between this disk and the expensive LSI disk
- Expect to order in Feb, along with dCache data disks



Mass Storage



Mass Storage: 1500 9940B tapes, no drives

- 500 tapes already ordered for SC3
- 2 more 500 tape order, roughly December and April
- Expect lots of recycling

Mass Storage: New robot +drives in early FY07.

- Depending on CCF for assistance on this
- want to have operational by February 2007!



Misc



Development/Test/Misc - 20 servers. Estimate half to be in production service.

- dCache will need ~8 more admin nodes to handle 600 TB
- new cms services (for example publishing metadata, hypernews, new database servers) will need nodes
- Want to place order February along with data disk order, expected delivery on April 1.